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09/766,656	01/23/2001	Alan K. Gorenstein	38188-382	8377

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EXAMINER

LE, KHANH H

ART UNIT

PAPER NUMBER

3622

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11

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/766,636

Applicant(s)

GORENSTEIN, ALAN K.

Examiner

Khanh H. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 May 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **FINAL ACTION**

1. This Office Action is in response to the Amendment received May 15, 2002 (Paper #10). Amended claims 2 and 19 have been entered. Claims 1-21 are now pending. Claims 1, 5, 16, 18, are independent.

Previous rejections under 35 USC 103 are withdrawn and new prior art references applied in view of the amendments.

### ***Claim Rejections - 35 USC § 112***

2. Rejections of claims 2-4, 14-15, 19-21 under 35 USC § 112, first and second paragraphs are withdrawn as Applicants' arguments are persuasive.

The Examiner heretofore adopts Applicants' definition of "indicative of the variance among the population" of the composite score for each population member, as stated in Applicants' Amendment at page 4, 2<sup>nd</sup> full paragraph. (see discussion of claim 2 below).

### **Official Notices**

3. All Official Noticed facts taken in the last Office Action and not seasonably challenged are taken as admitted. In re Chevenard, 139 F.2d 71, 60 USPQ 239 (CCPA 1943). See MPEP 2144.03.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by **Bayesian Model Averaging: A Tutorial (with discussion) ( 306k bytes )**  
**Corrected version of the Statistical Science 14:4, 382-417 article.**  
**Jennifer A. Hoeting, David Madigan, Adrian E. Raftery and Chris T. Volinsky, November 1999, downloaded Jul 22, 2002 from**  
**[www.stat.washington.edu/www/research/online/hoeting1999](http://www.stat.washington.edu/www/research/online/hoeting1999), hereinafter “the BMA article”.**

The BMA article, at pages 393-394, especially p. 394 col 1 first 2 full paragraphs, discloses

A method for segmenting comprising the steps of:  
running more than one segmentation strategy (Definition of BMA is combining several models, model averaging; p. 394 col 1 first 2 full paragraphs, especially step 1') against a population (of patients, p. 393);  
generating a first composite score for each population member by combining each of the scores for that member from each of the more than one segmentation strategy (p. 394 col 1 first 2 full paragraphs, especially steps 2')  
and  
segmenting the population according to the generated first composite scores (p. 393-394, esp. p. 394, col 1 first 2 full paragraphs, steps 1', 2', 3 and 4).

Claim 18. A computer readable medium bearing instructions for segmenting members of a population of members, said instructions being arranged to cause one or more processors upon execution thereof to perform the steps of:

running more than one segmentation strategy against a population to generate for each strategy a score for each population member;  
generating a first composite score for each population member by combining the scores for that member from each of the more than one segmentation strategy; and  
segmenting the population according to the generated composite scores.

Claim 18 parallels claim 1 in computer readable medium format and is rejected on the same basis.

**Claims rejections. 35 U.S.C. 103**

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. **Claims 2-17, 19-21 are rejected under 35 U.S.C. 103 (a) as being unpatentable over “the BMA article” as applied to claim 1 in view of admitted art and other prior art.**

Claim 2.

“ The method according to claim 1, further comprising the step of:  
generating a second composite score, different than the first composite score, for each population member, **wherein the second composite score indicates variance among the population**; said each second composite score based on that population member’s scores for each strategy.”

The BMA articles disclose combining several models and segmenting based on a resulting score.(claim 1) . BMA also discloses that combining models enhances predictive results. BMA discloses the resulting score based on a weighted average (step 2’).

Further, it is admitted that any composite score for each member of the population derived from combining the member’s scores for each strategy is ” **indicative of variance among the population**” ( Applicants’ representative’s statement in the Amendment at p. 4 second full para., :“ as the ...composite scores for each population member are constructed from individual segmentation strategies that by definition indicate variance among the population members , ...each of the exemplary methods of generating a composite score produces a result

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which as compared to the other population members' composite scores is indicative of variance among the population").

Thus, it would be obvious to one skilled in the art that the BMA method could be repeated to calculate a second composite score for each member of the population, e.g. using a straight average of the scores per member per model instead of the weighted average disclosed by BMA (such substitution is well-known in the arts) to allow further characterization of the segment with the new composite score.

Claim 3:

"The method according to claim 2, further comprising the step of:  
generating an overall score for each population member by combining the first and second composite scores; and  
segmenting the population according to the generated overall score."

Segmenting based on scores is disclosed by the BMA article. Combining two or more scores as a method for obtaining a more reliable number is a well-known calculation method. One example would have been, for one student, calculating a grade point average across several instructional subjects, to measure the overall proficiency of the student. It is well-known the more measures obtained the better the measured object can be characterized.

Thus one skilled in the arts would have known to combine two composite scores, obtained over combined models, to take advantage of the general knowledge that more scores /models yield better measuring results.

Claim 4

The method according to claim 3, further comprising the step of:  
forwarding marketing material to a selected portion of the segmented population.

It is admitted in the specifications that segmenting methods for consumers targeting is well known. Thus one skilled in the arts would have known to use the efficient segmentation method as discussed in claim 3 to forward targeted material to selected portions of a segmented population for best results.

(e.g., see also "Fleet financial banks on data warehouse, Target Marketing, Philadelphia, Nov 1998, which discloses segmenting a population based on combined modeling methods including CART (p. 2 first full para. ) in which the consumers are sorted ( by scores, p. 1) as good/bad prospects for marketing mailings).

Claim 5.

A method for segmenting members of a population of members, comprising the steps of:  
running more than one segmentation strategy against the population to generate for each strategy a score for each population member;  
determining a set of scores for each population member, wherein the set of scores for a particular member comprises the score for that particular member from each of the more than one segmentation strategy;  
generating for each population member a first composite score based on that member's set of scores; and  
ranking the population members, in accordance with the first composite scores, into a first ranked list.

This claim parallels claim 1, disclosed as above, with the addition of ranking the members. Ranking is a well-known method that can be substituted for scoring (see e.g. ranking which is disclosed in the Equifax article, mentioned in last Office Action).

One skilled in the arts thus would find it obvious to rank members for segmentation instead of just scoring as ranking permits better (continuous) segmentation, whenever called for by the segmentation goals, as is well-known in the arts.

Claim 6. The method according to claim 5, further comprising the step of: selecting a portion of the population to receive marketing material based on the first ranked list.

The additional limitation parallels that of claim 4 and is rejected on the same basis.

Claim 7. The method according to claim 5, further comprising the steps of:  
identifying a plurality of segmentation strategies;  
performing lift table analysis on each of the plurality of segmentation strategies;  
and  
selecting a subset of the plurality of segmentation strategies based on the lift table analyses, wherein the subset comprises the more than one segmentation strategy run against the population.

It is admitted in the specifications that the lift table method to select segmentation strategies is prior art. It would have been obvious to one skilled in the arts to combine the method of claim 5 as discussed above with the admitted art so as to keep only the most promising modeling strategies yet still retain the enhanced results from combining more than one modeling strategies such as taught by the Equifax article.

Claim 8. The method according to claim 5, wherein the first composite score for each population member is an average of that member's set of scores.

The BMA article, in the cited sections, does not explicitly teach the resulting numeric score is a straight average but the Data Mining articles, which also teaches combining models, at pp. 213-219, discloses an average composite score, at p.216, 3<sup>rd</sup> full paragraph. Thus one skilled in the arts would have known to combine the teachings of the BMA article with the Data Mining article to implement a simple way of measuring a composite score.



Claim 9. The method according to claim 8, wherein the average is a weighted average.

The BMA article teaches the resulting score is based on a weighted average . (p. 394 col 1 first 2 full paragraphs, especially steps 2')

Claim 10. The method according to claim 5, further comprising the step of: generating for each population member a second composite score, different than that member's first composite score, based on that member's set of scores.

The additional limitation parallels that of claim 2 in broader terms and thus is rejected on the same basis.

Claim 11. (" The method according to claim 10, wherein the second composite score for each population member is based on an ANOVA comparison of the sets of scores.

It is interpreted that "based on an ANOVA comparison of the sets of scores" means using the F score. (see specifications).

The ANOVA technique is a well-known and popular technique and the F score which is part of the ANOVA calculation is also well-known. One skilled in the art would have known to use the F score as a composite score across the modeling strategies , for each population member, to distinguish the segment (by comparison of variances) , as generally well-known in the art and at the same time to capitalize on the enhanced benefits of models combining as taught by the BMA article.

Claim 12. The method according to claim 10, further comprising the steps of:

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generating for each population member an overall score based on the first and second composite scores for that member; and  
ranking the population members, in accordance with the overall scores, into a second ranked list.

Combining models give better results ( BMA article, Equifax article, Data Mining article) . It is further obvious to combine two scores for each member for enhanced results ( see claim 3).  
Ranking as a method for segmenting g is known. The Equifax article.

The additional limitation of this claim essentially parallels that of claim 3 and is rejected on the same basis.

Claim 13. The method according to claim 12, further comprising the step of: selecting a portion of the population to receive marketing material based on the second ranked list.

The additional limitation parallels that of claim 4 or 6 and is rejected on the same basis.

Claim 14. (The method according to claim 10, further comprising the step of:  
generating for each population member a third composite score based on the sets of scores, wherein the third composite score determines variance among the sets of scores differently than the first and second composite scores.

The additional limitation regarding the composite score determining variance parallels that of claim 2 and is rejected on the same basis.

It is further obvious, per Applicant's argument as presented in claim 2, that each composite score (e.g., called 3<sup>rd</sup>) will determine variance differently from any other composite score (e.g. called 1<sup>st</sup> and second).

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The additional limitation regarding a third composite score is rejected on the same basis as that of claim 3, based on the known principle that the more measures obtained the more accurate the resulting measure(score)

Thus one skilled in the arts would have found it obvious to add another third measure to make the results even more accurate.

Claim 15.( The method according to claim 14, further comprising the steps of:  
generating for each population member an overall score based on at least two of the  
first, second and third composite scores; and  
ranking the population members in accordance with the overall scores, into a  
second ranked list.)

As to claims 15 and 16, it is obvious to one skilled in the arts to have as many scores as desired on the known and above-discussed principle of combining the scores for greater measurement accuracy (see claim 3).

Claim 16. A method for compositely segmenting members of a population, comprising the steps of:

running more than one segmentation strategy against the population to generate for  
each strategy a score for each population member;  
for each of the more than one segmentation strategy, assigning a rank to each  
population member according to the scores for that segmentation strategy;  
determining for each population member a set of ranks, wherein the set of ranks for  
a particular population member comprises the assigned rank for that particular  
member from each of the more than one segmentation strategy;

generating a first composite score for each population member by averaging the set of ranks for that member;  
assigning a first composite rank to each population member in accordance with the first composite scores;  
generating a second composite score for each population member based on an ANOVA comparison of the sets of ranks; assigning a second composite rank to each population member based on the second composite scores;  
generating an overall score for each population member by averaging the first and second composite ranks for that member; and  
ranking the population according to the overall scores.

Claim 16 is a combination of claims 5, 11, and 12, and thus is rejected on the same bases.

Claim 17. The method according to claim 16, further comprising the step of:  
selecting a portion of the population as ranked in accordance to the overall score.

The BMA article in view of known art, such as disclosed in the Equifax article, discloses segmentation by ranking thus it would have been obvious to use the method of claim 16 as disclosed above to rank and segment.

Claim 19-21 parallel claims 2-4 in computer readable medium format and are rejected on the same basis.

#### **Conclusion :**

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**Newly cited art:**

Alan Levingston, "Modern Miners Plumb for Gold", ABA Banking Journal, December 1998, hereinafter the "Plumb for Gold" article discloses Segmenting a population based on several variables models and multiple models combination .

Jeff Morrisson, "Introducing C.A.R.T. to the forecasting process "The Journal of Business Forecasting Methods & Systems "

Flushing , Spring 1998, vol 17, p. 1, pp 9-12, showing segmentation per tree structure

"Fleet financial banks on data warehouse, Target Marketing, Philadelphia, Nov 1998, discloses model for estimating a user's probability for responding to a mailing, , using scores per user for segmentation (p. 1) using combined modeling methods including CART (p. 2 first full para. )

**A Theory of Multiple Classifier Systems And Its Application to Visual Word Recognition (1992)"** by Tin Kam Ho, from <http://citeseer.nj.nec.com/ho92theory.html>, downloaded 7/22/02, discloses combining sets of independent classifiers and a decision combination function for results enhancement.

"Eleven Multivariate Analysis Techniques: Key Tools in Your Marketing Research Survival Kit" by Michael Richarme  
[http://66.216.75.103/publ\\_art/Multivariate.htm](http://66.216.75.103/publ_art/Multivariate.htm), downloaded 7/22/02 discloses analysis techniques

**Previously cited:**

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Equifax launches Thin Rank, a Risk Model to Rank Order All Consumers” PR Newswire, p6844, April 7, 2000, Dialog File # 02449611, (File 621)...” ,(the Equifax article).” Discloses credit risk scoring using combined models.

Mastering Data Mining, The Art and Science of Customer Relationship Management by Michael J.A. Berry and Gordon S. Linoff, 2<sup>nd</sup> edition, John Wiley and Sons, copyright 2000, pp 213-225 Discloses combining multiple models yields better results (p 213-214, Fig 7.16) combined modeling on all input data (pp213, p216 , and, a combined score based on variance (p. 216, 4th full paragraph, using “statistics”; Fig 7.17: “evidence with a confidence”) averaging the scores for the combined score, across the models (p. 216, 3<sup>rd</sup> full paragraph).

PCT Wo0034889 discloses scoring each segment , weighted average computation of scores .

\* PCT WO 01/06405 (Pub date: 01/25/2001, priority to US Patent application 09356191 filed 16/99) discloses multiple models (each model rep. a product) , scoring of members of a population, ranking the scores among the models/member so to market the most promising product and who to market to. For each model, the members are scored (based on prob. for purchasing)then segmented (sorted), then mail to the most promising members. For each model (product) a combined score (average , based on scores of each consumer) is calculated.

“Marketing research: A state of the art review and directions for the twenty first century” by Malhotra, Naresh K and others, Journal of the Academy of Marketing Science, v 27n2 pp 160-183, Spring 1999, Dialog File 15, # 01795363 discloses ANOVA techniques and other marketing research methodologies.

**9. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh H. Le whose telephone number is (703) 305-0571. The examiner can normally be reached on Tues-Wed from 9:00 AM – 6:00 PM. The examiner can also be reached at the e-mail address: [khanh.le2@uspto.gov](mailto:khanh.le2@uspto.gov)

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Stamber, can be reached on (703) 305-8469. Facsimile transmissions to this Group (TC 2100) may be directed to :

After-final (703) 872-9327  
Before Final (703) 872-9326  
Customer Service (703) 872-9325

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-1113 .

*Stephen Gravini for ens*

*HHL*

July 24, 2002

STEPHEN GRAVINI  
PRIMARY EXAMINER